

What is claimed is:

1. A method of preserving a biopharmaceutical product comprising:

placing a medium comprising a biopharmaceutical product within a vessel having an interior cavity defined by an interior wall of said vessel;

flowing a cooling fluid through a removably mounted heat exchange structure within said interior cavity of said vessel, said structure comprising an elongated pipe being centrally positioned within said cavity, said structure having one or more heat transfer members thermally coupled thereto; and  
actively cooling said interior wall using a fluid.

2. The method of claim 1, wherein said elongated pipe is tubular and adapted to be actively cooled using a fluid.

3. The method of claim 1, wherein said one or more of said heat transfer members are fins.

4. The method of claim 3, wherein said one or more of said fins extend radially from said elongated pipe.

5. The method of claim 1, wherein said vessel comprises an open end which is closable by a removable top, said structure being removable through said open end of said vessel.

6. An apparatus for preserving a biopharmaceutical product comprising:

a vessel adapted to receive a medium comprising a biopharmaceutical product, said vessel comprising an interior wall defining an interior cavity, said interior wall adapted to be actively cooled using a fluid; and

a structure comprising an elongated pipe being centrally positioned and removably mounted within said interior cavity, said pipe having one or more heat transfer members thermally coupled thereto.

7. The apparatus of claim 6, wherein said one or more heat transfer members are fins.

8. The apparatus of claim 7, wherein said structure comprises a plurality of fins.

9. The apparatus of claim 8, wherein said plurality of fins extend radially from said pipe.

10. The apparatus of claim 9, wherein said plurality of fins are configured to form freezing compartments within the interior cavity.

11. The apparatus of claim 10, wherein said freezing

compartments are formed between adjacent fins and the interior wall.

12. The apparatus of claim 6, wherein said elongated pipe is solid.

13. The apparatus of claim 6, wherein said elongated pipe is tubular and adapted to receive a cooling fluid.

14. The apparatus of claim 6, wherein said interior wall includes one or more heat transfer members extending towards said structure.

15. The apparatus of claim 6, wherein said one or more heat transfer members have interior channels adapted to be actively cooled using a fluid.

16. The apparatus of claim 6, wherein said one or more heat transfer members contain passageways adapted to be actively cooled using a fluid.

17. The apparatus of claim 6, wherein said vessel comprises a jacket spaced from an exterior wall of said vessel to define a fluid flow path adapted to receive fluid to actively cool said interior wall.

18. The apparatus of claim 18, wherein baffles are positioned within the fluid flow path between the jacket and the exterior wall of said vessel to define a spiraling path for fluid.

19. The apparatus of claim 6, wherein one or more of said heat transfer members have a non-uniform cross-section.